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ABSTRACT

The speech given at the awards ceremony of the Midwest Talent Search Project, addresses gifted and talented students about issues in their education. The speaker urges students to be assertive in fighting curricular inflexibility and to understand the complementary functions of acceleration enrichment. He discusses the benefits of summer courses sponsored by the Study of Mathematically Precocious Youth. The paper concludes with 10 suggestions, including a justification of public school services for gifted and talented students, the importance of supplementary activities and summer residential academic courses, the value of college-level advanced placement examinations, the need for post-graduate education, and the opportunity to receive a well-rounded education. (CL)

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"When Two Strong Men [or Women] Stand Face to Face . . ."*

Julian C. Stanley

I am pleased to be back at Northwestern University, where 23 years ago Donald Campbell of the psychology department and I, then at the University of Wisconsin in Madison, collaborated on a book about how to design experiments in the social sciences. Also, nearly 20 years ago, my daughter studied drama here one summer. My brilliant doctoral student from those days, David Wiley, is now the dean of its school of education. It is a fitting base for the Midwest Talent Search and a lovely spot in which to honor you for your great mathematical or verbal reasoning ability. Congratulations to the MTS director, Dr. Joyce VanTassel-Baska, and her associates!

Chicago figures strongly in the current revival of interest in the intellectually talented. In 1971 the newly created Spencer Foundation of Chicago had a great deal of money to give away and few requesters. I

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*Speech at the awards ceremony of the Midwest Talent Search Project, Evanston, Illinois, 5 June 1983. It may be reproduced freely, with appropriate credit.

secured from that philanthropic organization $266,100 to be spent over a five-year period starting the Study of Mathematically Precocious Youth (SMPY) at The Johns Hopkins University in Baltimore. Surprisingly even to us, from our first talent search in 1972, involving only 450 students, and our first fast-paced mathematics class that year have grown four other regional talent searches and many special, fast-paced, academic programs. This year, every state had access to a talent search, and every qualifying student can choose stimulating courses at a number of residential summer centers.

Greetings to the Students Being Honored

We salute each of you as having demonstrated unusually strong academic potential. If you are here because you scored at least 630 on the mathematical sections of the College Board's Scholastic Aptitude Test, you reasoned better on SAT-M than 85 percent of college-bound 12th-grade males and 94 percent of college-bound 12th-grade females. If you scored 580 or more on the verbal sections of the SAT, you are in the upper 10 percent of college-bound high-school seniors in verbal reasoning ability. Your 60+ on the Test of Standard Written English indicates that you are in the top 3 percent of such seniors with respect to knowledge of the mechanics of English expression.

You all have in common superb talent in one or more of these three important aspects of scholastic aptitude. Many years ago, in his "The Ballad of East and West," Rudyard Kipling somewhat chauvinistically stressed the common bond among you:

Oh, East is East, and West is West,
and never the twain shall meet,
Till Earth and Sky stand presently
at God's great Judgment Seat;
But there is neither East nor West,
Border, nor Breed, nor Birth,
When two strong men stand face to face,
though they come from the ends of the earth!

Consider Kipling's "two strong men" as "intellectually talented youths" and one has a summing up of the rationale for the current talent searches across the land. We believe that intellectual talent transcends sex, circumstance, and nationality. It requires special educational opportunities for intellectually highly able young students with respect to their area(s) of great talent. You are, indeed, joined together with persons like yourselves all over the world by a common bond of promise and educational needs.

More than 200 years ago the poet Thomas Gray set forth in his immortal "Elegy Written in a Country Churchyard" the following justification for talent searches:

Full many a gem of purest ray serene
The dark unfathomed caves of ocean bear;
Full many a flower is born to blush unseen,
And waste its sweetness on the desert air.

This reminds me of a story some of you may already have heard: A man died and went to heaven. He was met at the pearly gates by St. Peter, who

greeted him cordially and offered to introduce him to anyone in heaven. The man asked to meet the greatest general who had ever lived. St. Peter immediately summoned an unimpressive old man. The new entrant to heaven stared disbelievingly and said to St. Peter, "This man is a fraud. In my own home town he was only a lowly janitor." "Yes," said St. Peter, "I know that. But if he had been a general, he would have been the best the world has ever known."

It is a society's responsibility, and should also be its privilege, to help prevent potential Miltons, Einsteins, and Darwins from coming to the "mute inglorious" ends about which Gray mused in that country churchyard long ago. The problem has changed little, but the prospects are much better now.

Yet, as each of you is reminded on all sides, intellectual ability is only potential energy. Unless made kinetic, it is of little avail to the promising individual, and may be quite harmful. Some wag remarked that "You can't major in IQ." Another said, "For fifty cents and a high SAT score you can get a cup of coffee."

The key to effective use of talent was stated succinctly by the poet Robert Browning. Reworded rather awkwardly to eliminate sex bias it becomes ". . . a man's [or a woman's] reach should exceed his [or her] grasp, Or what's a heaven for?" Surely, parents and educators should make every effort to extend both the reach and the grasp of intellectually talented youths, or what's an educational system for?

As a little diversion before we consider some points SMPY has learned in its twelve years that might help you, let me mention one of my favorite cartoons. It shows a father saying to his wife in their young son's

presence, "He could be precocious if he only tried." Far too many persons confuse genuine intellectual talent, and its legitimate special educational demands, with the drone or "greasy grind" urged beyond his or her optimum pace by overly ambitious parents. That is why the talent search in which you participated uses a prestigious, well-validated test, the SAT, to find high talent. Once it has been established objectively that you have the mental ability with which to proceed faster and at a higher level in certain subjects, both your parents and your teachers have strong justification for helping you move ahead in ways and at rates appropriate for that ability.

Curricular Inflexibility

Alas, that is where the rub usually comes. Over the years since the days of the private tutor and the one-room schoolhouse has arisen the age-in-grade Carnegie Unit lock step. In most school systems this denial of individual differences has become set in concrete in both educational theory and practice. From at least kindergarten through the sixth grade nearly all students are required to take particular subjects in a particular grade at a particular age. From about the seventh grade onward they are expected also to have them in standard-time blocks, usually a 45- or 50-minute period per day five days per week for a school year. This is a unit of study set up by an educational commission, not because of its presumed educational value but instead in order to have for pension purposes a standard unit by which to identify a full-time teacher vs. a part-time one.

The age-in-grade lock step is somewhat like the practice of the innkeeper Procrustes in Greek mythology, who tied travelers to an iron bed

and amputated or stretched their limbs until they fitted it. It has produced a curricular structure that often provides poorly for persons at either end of the ability continuum. Certain of you may have been more fortunate than this description indicates, because your intellectual needs cried out loudly enough to be heard. Probably, many of you were helped by parents and/or teachers to break out of the age-in-grade vise a little.

For most of you the greatest challenge to such a system must occur during the next few years, as your educational needs increase rapidly. You'll require all the wisdom, planning, tact, and help you can get anywhere. Become your own coordinator of special educational opportunities. Have an agenda of curricular adjustments you must get, and then plan and set up strategies to secure them. Be clever, firm, polite. It's not whether you get the curricular flexibility and articulation you need, but how. Don't take "No" for an answer, but avoid being abrasive. Work out ways to make the school or school system your ally.

Acceleration and Enrichment

One of the first roadblocks you'll encounter in the way of the desired flexibility is likely to be that dread straw man, acceleration versus enrichment. Some inspired educational obstructer must have hit upon the glamorous word "enrichment," contrasted with the more prosaic one, "acceleration." Much that is labeled "enrichment" is merely time-filling busywork, or largely nonacademic fun and games, or "creativity training in a vacuum"--that is, mostly divorced from the subject matter of the school. Even academic courses for the intellectually gifted are not likely to relate

closely to the student's main interests and abilities. Usually, he or she must take whatever the educators offer.

The greatest obstacle is often educators' conviction that educational acceleration of virtually any kind is bad for your social and emotional development. They are so firm in this belief that it is difficult for parents to view various accelerative alternatives objectively. It is easy not to consider fully enough the educational, social, and emotional consequences of remaining age-in-grade with little real opportunity to forge ahead in one's special areas. The intellectual stagnation, boredom, and frustration that can result from being incarcerated in a subject far beneath one's abilities year after 180-day school year take their toll of motivation and mental alertness. When appropriate intellectual challenge finally arrives, typically as the recent high-school graduate goes off to a demanding college, zest and ability to cope academically may be inadequate. What I label the "MIT syndrome" may result from the shock of having easily been an academic big shot in high school and then suddenly finding it difficult even to pass the college courses. Many desired professional careers have been prevented in this way. The shock, disappointment, and chagrin certainly aren't good for one's social and emotional development.

We of SMPY became so concerned with this false antithesis of acceleration versus enrichment that we carefully prepared a book treating most aspects of the controversy. It is titled Educating the Gifted: Acceleration and Enrichment.[1] Thorough review of studies in this area by Professor Stephen Daurio revealed no evidence of harm caused by suitably accelerating able youngsters. We concluded that in order to be effective, acceleration must also be enriching. Likewise, appropriate subject-matter

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[1]Published by The Johns Hopkins University Press, Baltimore, Maryland 21218, in 1979. Its editors were William C. George, Sanford J. Cohn, and Julian C. Stanley.

enrichment without acceleration now or later is almost certain to lead to boredom and frustration. The two should be partners.

Great Acceleration in Mathematics and Science

Some acceleration must be extreme in order to permit intellectually brilliant youths to move ahead fast and well enough. For example, during our three-week residential precalculus summer course the typical student learns two years of mathematics extremely well. A few cover only first-year algebra, whereas a few demonstrate their knowledge of two and a half years of algebra, a year of geometry, half a year of trigonometry, and half a year of analytic geometry. An occasional student begins calculus before the three weeks end. These students range in age from 9 to 14, most of them being 12 or 13 and having finished the seventh grade. (The nine-year-old, who lives in Ohio, has completed the eighth grade in everything except mathematics, in which he has gone further.) The summer-program students range on SAT-M from 500, better than 51 percent of college-bound male 12th-graders score, to a rare 800, which is 50 points above the 99th percentile of college-bound male high-school seniors. All are at least the upper 1 percent of their agemates in mathematical reasoning ability.[2]

Last summer 25 students aged 11-15 from 12 states learned the standard first year of high-school biology excellently in three weeks. They too ranged in SAT-M score from above 500 into the high 700's.

Thirteen students aged 12-15 from six states did exceedingly well on the College Board's high-school chemistry achievement test after only the three weeks of learning the subject. This summer we have added high-school

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[2]The qualifying composite score is $M \geq 500 + V + 5(TSWE) \geq 1150$ before age 13.

physics in three weeks, and also high-school American history.[3] It is clear that the highly able young students who enroll do not need to wait their age-in-grade turn to take these subjects. Instead, they can master each of them in a short, intensive period of time and then move on in their regular school to Advanced Placement Program, college-level aspects of each subject.

Ten Suggestions

There is much more I could tell you about summer courses, SMPY's "smorgasboard of special educational opportunities," and the like, but because you are probably eager for the presentation of awards to begin I'll telescope the rest of my remarks. Here are 10 pointers:

1. Private schools, parochial or non-sectarian, are no simple educational solution for persons as talented as you. Many have small classes, some excellent teachers, and an enjoyable social atmosphere, but even the most selective ones tend to cater mainly to students in the 120-140 IQ range whose abilities are fairly even. Only a few provide well enough for the math honorees in this audience, who are ready to move through rigorous mathematics several years in one. Also, of course, many private schools are too small to have the needed scheduling flexibility. Many of SMPY's mathematically ablest youths manage to work out suitable acceleration and enrichment in public schools. By going there they save far more than enough money to take full advantage of special educational opportunities such as residential summer programs.

Rather than parents' saying "I'll find a good private school that will take care of our intellectually talented child's special educational needs,"

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[3]For this history course the qualifying scores are SAT-V $\geq$ 430 and TSWE $\geq$ 35 before age 13.

they and you should weigh the costs and advantages of the various educational options open to them. These may include paying tuition charges at a public school not in their residential area, as one boy did in order to be near a college in which he wanted to take some courses during the day. Considerations may include moving to another place in order to be eligible for better public schools. Unfortunately, such decisions aren't usually made easily, especially if religious or social values predominate.

2. Consider carefully all available in-school and out-of-school educational supplementation. Many schools have various academic clubs. There is an annual national mathematics competition culminating in the Mathematics World Olympiad. If you are math-talented, get into it as soon as feasible.[4] Compete in local and state mathematical or scientific competitions. Might you become a part-time college student, taking a course each term in your favorite area? For which educational summer opportunities can you plan ahead, perhaps including starting a savings account now for the 1984 ones? Get your various relatives and close family friends to help. Perhaps a local service club would chip in.

3. It is not always easy to distinguish an entertaining "enrichment" activity such as the Olympics of the Mind from an academic one such as a course in computer science, a mathematics competition, or academic summer courses. Do not think that an enrichment activity appropriately substitutes for an academic one. Sheer enjoyment may not produce much educational gain.

4. Residential academic courses taken during summers have values far beyond the subject matter learned. They offer stimulating chances for you

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[4]In September, ask the mathematics chairman of a senior high school about this. Also, if you score extremely high in the high-school competition, consider entering the college one (Putnam Contest), too.

to mingle socially, athletically, musically, and culturally with large numbers of your true intellectual peers and, unless you are highly talented both verbally and mathematically, also with your intellectual superiors. This association with such persons, probably for the first time in your life, should help you develop a better self-concept and improve your coping skills. How nice it is to be in a place where the common denominator is being a "brain" and can therefore be forgotten for a few weeks! Furthermore, you will find many of the instructors and teaching assistants admirable role models.

5. Besides the residential academic summer programs, your best special opportunity is probably the large array of college-level examinations offered by the College Board's Advanced Placement Program each May. Anyone may take these, regardless of preparation.[5] They enable you to earn two semester's of college credit in a variety of courses, about 20 subjects ranging from calculus to studio art or the history of art. Nearly all selective colleges and universities in the country award credit for excellent scores on these examinations. Get acquainted with the AP exams and work systematically toward taking as many of them as feasible each May from now on until you become a full-time college student. Plan toward sophomore standing when you enter college so that you can save your parents one-fourth the cost of an expensive college education and also get on to graduate or professional school a year earlier. Credit for four or five courses will give you college sophomore standing.

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[5]Of course, few of you can get high grades on the three-hour examinations unless through some combination of your own efforts and those of your educators you become well prepared.

Does this sound too visionary to you right now? If so, consider that last May at least 14 youths aged 12-14 who reason extremely well mathematically earned the highest possible grade, 5 on a 5-point scale, on the AP's higher-level (BC) calculus examination. This feat, accomplished by only 2000 students in the whole country each year, is equivalent to earning the grade of A+ in a whole school year of calculus at a major university such as Northwestern, Chicago, Wisconsin, or Michigan. One of SMPY's proteges earned a 5 at age 11!

In recent years, four persons completed Johns Hopkins' four-year bachelor's-degree curriculum in two years, two of them at age 16.[6] They had come with large numbers of credits earned by taking AP exams and also by taking college courses while still in high school. You may not want that much acceleration or be able enough to do it well, but this illustrates in the extreme that completing your undergraduate studies in three years at age 20 or 21 is a reasonable goal.

6. Don't be deterred from moving ahead in your specialties by claims that you'll have "holes in your background." It is easy to arrange your studies so that this isn't so, especially in mathematics. It would be well to take standardized tests in the subject to pinpoint what you do and do not yet know. Then, perhaps with the aid of a good mentor, fill in just those gaps rapidly and well.

7. Take the SAT once each year, preferably in January, to see how your three abilities measured by it are growing. Rejoice in the high, increasing scores, and take steps to improve the low ones. Suggestion: If the

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[6]They majored in biology, electrical engineering, mathematical sciences, and mathematics (female Rhodes Scholar at age 18), respectively.

percentile rank on the SAT score report for your SAT-Verbal score is greatly below the percentile rank for your SAT-Mathematical score, get a paperbound copy of Wilfred Funk and Norman Lewis's 30 Days to a More Powerful Vocabulary and work through it systematically. Also, take Latin and honors English. Read some interesting but demanding books, even if that means leaving the computer for awhile.

8. Be daring. Take three College Board high-school-level achievement tests (you get three for the price of one) fairly often. One might be English composition. For the math-oriented, Level 1 and/or 2 of the mathematics test should be revealing. You probably know more biology and more American history than you realize. Try at least six different achievement tests during the next two or three years.

9. Each of you has plenty of ability with which to obtain a Ph.D., J.D., or M.D. degree from a top-flight university, but of course not all of you want vocations that require this level of degree. Don't sell yourself short, however. You have marked talents that can contribute toward your occupational success and happiness. Try not to drop out of graduate training too soon, or avoid it entirely, because of the lure of high-paying positions. Remember, for example, that the vocational "half-life" of a person with an excellent bachelor's degree in engineering is about 10 years. Increasingly thereafter he or she must usually move into sales or management in order to get ahead. A master's degree increases the half-life, and a superb doctorate may extend it throughout the person's career, as well as land him or her a good university position.

Computer or engineering fields will lure many of you, because there spectacular opportunities lie. Again, though, don't enter them only barely prepared. The bachelor's degree is not meant to be truly professional grounding.

10. Finally, during your high school and undergraduate work get a fine education! It will be your last really systematic opportunity to explore the thoughts and creations of Shakespeare, Freud, B. F. Skinner, Plato, Mozart, Rembrandt, Darwin, Charlie Chaplin, Marx, Adam Smith, Joan of Arc, Galois, Einstein, Buddha, and many others. If you become too impatient to get on with technical matters, you will probably go through life a craftsman instead of a learned person. Because you must live with yourself 24 hours every day of your entire life, you need to cultivate yourself in many respects in order to be worth your own company. Groucho Marx is reported to have said, "I wouldn't join any club that would have me as a member." Don't be that way with yourself.

I leave you, then, with whatever residue these remarks may create in your mind. Most of them are serious admonitions, but of course not all of life is meant to be serious--especially not at your age. A good sense of humor, not taking one's self too seriously too much of the time, is a measure of emotional adjustment and maturity. Try to cultivate the light touch, the kindly and generous approach to people. Develop excellently academically, of course, but lead a <u>full</u> life. Play beautiful melodies on that potentially most responsive instrument, yourself, for your own enjoyment and that of others!

For information about Johns Hopkins' summer programs, write the Center for the Advancement of Academically Talented Youth (CTY), 305 Latrobe Hall, The Johns Hopkins University, Baltimore, Maryland 21218, or telephone (301) 338-8427. CTY also conducts the regional talent search in the East, from Virginia to Maine. Dr. William G. Durden is its director.